

PATENT ABSTRACTS OF JAPAN

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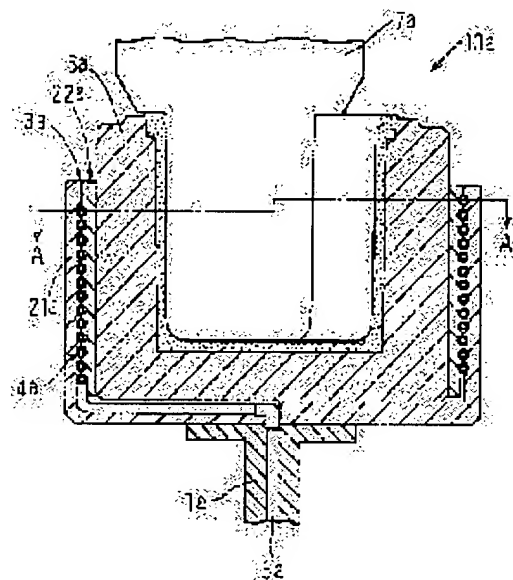
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TANI FUJIO

(54) APPARATUS FOR FIXING POTTERY MOLD

(57)Abstract:

PURPOSE: To easily fix and detach a mold and to equalize molding pressure to obtain sufficient molding accuracy by arranging a pressure mechanism between an outer frame and an inner frame.

CONSTITUTION: A cylindrical or polygonal outer frame 21a opened at its open end is provided on a lathe shaft 1a and an inner frame 22a opened at both ends thereof and divided into an arbitrary number of parts is arranged inside the outer frame 21a. The inner frame 22a is appropriately expanded and contracted by the pressure mechanism 4a arranged between the outer and inner frames 21a, 22a to fix a mold 6a. Next, a pottery raw material such as clay is put in the mold 6a and an iron 7a is pressed to the pottery raw material in the order of a vertical direction and a horizontal direction while both of the mold 6a and the iron 7a are rotated by a motor to obtain a rolled and molded pottery product. Since horizontal molding pressure becomes the strong compression load of strength characteristics to the mold 6a, the damage of the mold 6a can be prevented without being affected by the thickness of the mold 6a.



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審査請求 未請求 請求項の数 3 F D (全 6 頁)

【特許請求の範囲】

【請求項1】 回動自在に形成したロクロ軸と、該ロクロ軸上に設け、上端を開口した円筒形状または多角形状の外ダブと、該外ダブの内側に配設し、両端を開口して、任意数に分割した円筒形状または多角形状の内ダブと、該外ダブと該内ダブ間に配設した加圧機構と、該内ダブの内側に配設した型と、該型の内部に回動自在に配設したコテとよりなることを特徴とする陶磁器成形型の固定装置。

【請求項2】 加圧機構が、外ダブと内ダブ間に挟設した螺旋状の加圧管よりなる請求項1記載の陶磁器成形型の固定装置。

【請求項3】 加圧機構が、外ダブと内ダブ間に挟設した複数の加圧シリンダよりなる請求項1記載の陶磁器成形型の固定装置。

【発明の詳細な説明】

【0001】

【産業上の利用分野】本発明は、陶磁器成形用の型を側面から加圧機構で加減圧調整することにより、型の固定および取り出しを容易にした陶磁器成形型の固定装置に関する。

【0002】

【従来の技術】一般的に、陶磁器成形装置は、低圧の圧延成形の場合、図9に示すように、ダブ2の中に型6を入れ、ロクロ軸1を回転させながら、型6の中に粘土等の陶磁器原料を入れ、コテ7を押し当てて成形している。また、粘土等の原料の高密度化、高精度化を要求される高圧の圧延成形の場合、ダブ2の中に型6を入れて、該型6を真空引きをし、ついで、ロクロ軸1を高速回転させながら、該型6の中に陶磁器用粘土等の原料を入れ、コテ7を押し当てて成形している。このため、従来の陶磁器成形型の固定装置としては、低圧の圧延成形の場合、ダブ2と型6との間にダブゴム4を配設して、これにより型6の細部の高さ、中心の位置を決めており、さらに、型6の脱着時の遊びと膨脹収縮による寸法変化を吸収するために、ダブゴム4と型6との間に約0.8mm～1mmの空隙3を設けている。また、高圧の圧延成形の場合には、上記したダブゴム4のほか、型6の浮き上がり防止のために、ロクロ軸1およびダブ2に孔部5を設けて、これより真空引きして型6を固定している。

【0003】

【発明が解決しようとする課題】従来の陶磁器成形型の固定装置としては、上述したとおり、低圧成形の場合、ダブ2と型6間にダブゴム4を設け、さらに、型6の脱着時の遊びと膨脹収縮による変化に対応して、ダブゴム4と型6間に空隙3を設けているため、成形時に、型6の偏心による偏肉とか、成形圧のバラツキによる変形が生じてしまうなどの問題が生じている。また、高圧成形の場合、上記したダブゴム4のほか、型を真空引きする

孔部5を設けており、成形圧に加えて真空圧の負荷が増すために、型6を厚くしたり、さらに、補強の骨材などにより型6を強固にして、型6の破損を防止しているが、これにより、型の重量、形状が大きくなって、取扱いが困難になり、かつ、型のコストも上昇し、寿命も短くなるなどの問題も新たに生じている。さらに、高密度化等の精密成形をするためには、肉厚、成形圧の均等化、型に対する負荷の軽減が必要で、空隙3や真空圧の調整等が検討されているが、十分な精度を得ることができないなど種々なる問題を生じている。

【0004】そこで、本発明は、上述した従来の欠点を除去するためになされたものであって、油、空気等の流体を入れて加圧した加圧管あるいは加圧シリンダにより外ダブと内ダブ間の空隙を調節可能とすることにより、型の固定および取り出しを容易にし、かつ、成形圧を均等化して、十分な成形精度を得ることを目的とする。

【0005】

【課題を解決するための手段】そこで、本発明は、第一に、回動自在に形成したロクロ軸と、該ロクロ軸上に設け、上端を開口した円筒形状または多角形状の外ダブと、該外ダブの内側に配設し、両端を開口して、任意数に分割した円筒形状または多角形状の内ダブと、該外ダブと該内ダブ間に配設した加圧機構と、該内ダブの内側に配設した型と、該型の内部に回動自在に配設したコテとよりなる陶磁器成形型の固定装置とすることによる。第二に、加圧機構が、外ダブと内ダブ間に挟設した螺旋状の加圧管よりなる陶磁器成形型の固定装置とすることによる。さらに、第三に、加圧機構が、外ダブと内ダブ間に挟設した複数の加圧シリンダよりなる陶磁器成形型の固定装置とすることにより、上記目的を達成しようとするものである。

【0006】

【作用】本発明においては、回動自在にロクロ軸を形成し、該ロクロ軸上に上端を開口した円筒形状または多角形状の外ダブを設け、該外ダブの内側に、両端を開口して任意数に分割した内ダブを配設し、該外ダブと該内ダブ間に配設した加圧機構により該内ダブを適宜拡張収縮して、該内ダブの内側に配設した型を固定し、さらに、該型の内部にコテを配設して、任意形状の陶磁器を成形するものであり、加圧機構により外ダブと内ダブ間の空隙が調節可能となるため、型の脱着時の遊びと型の膨脹収縮による寸法変化を吸収し、特に、多角形状のものについては、外ダブに対する内ダブのズレを防止して、型の固定および取り出しを容易にするとともに、型に対する負荷を強度特性の強い圧縮負荷として、型の破損を防止することができる。また、外ダブと内ダブ間に挟設した螺旋状の加圧管よりなる加圧機構とすることにより、螺旋状の管により加圧するため、型の加圧を均等化して、陶磁器成形時の肉厚、成形圧のバラツキを少なくすることができる。さらに、外ダブと内ダブ間に挟設した

複数の加圧シリンダよりなる加圧機構とすることにより、加圧機構の形状を簡略化し、かつ、複数の加圧シリンダで、型を効率的に固定することができる。

【0007】

【実施例】以下引き続き、本発明の陶磁器成形型の固定装置の要旨をさらに明確にするため、図面を利用して一実施例を説明する。図1および図2を用いて第一実施例を説明する。陶磁器成形型の固定装置10aは、図示しないモータ等により回転自在に形成した円柱状のロクロ軸1aと、該ロクロ軸1aの上部に固着し、上端を開口した円筒形状の外ダブ21aと、該外ダブ21aの内側に同心円状に配設し、両端を開口して、円周方向に任意数に分割した円筒形状の内ダブ22aと、該外ダブ21aと該内ダブ22a間の空隙3aに挟設した螺旋状のゴム管よりなる加圧機構4aと、一端を該加圧機構4aに他端を油圧ポンプ等に接続し、前記外ダブ21aおよび前記ロクロ軸1aの内部に配設した液体供給孔5aと、前記内ダブ22aの内側に2個に分割して配設した石膏等よりなる型6aと、該型6aの内部に図示しないモータ等により回転自在に配設したコテ7aとよりなる。

【0008】次に、本第一実施例の作用について説明する。まず、図示しない油圧ポンプ等より、液体供給孔5aを介して加圧機構4aに油を入れて加圧し、型6aを固定した後、粘土等の陶磁器原料を型6aに入れて、図示しないモータ等により型6aとコテ7aの両方を回転させながら、コテ7aを陶磁器原料に垂直方向、水平方向の順序で押し当てることにより、圧延成形した陶磁器製品を得ることができる。

【0009】なお、一実験例として、外ダブ21aと内ダブ22a間の空隙3aを約3mmの可動式とし、陶磁器原料を粘土70%、長石15%、水分量15%とし、型6aの回転速度を290rpm、コテ7aの回転速度を270rpm、垂直成形圧5kg/cm²、水平成形圧3kg/cm²、成形時間20秒として、加圧機構4aに1kg/cm²～10kg/cm²の油を入れて型固定し、型6aとコテ7aの隙間を7mmとして、肉厚7mmの切立状の陶磁器製容器を成形した場合に、従来の真空引きによる型固定と比較して、型6aの加圧が高くなるほど成形した型合せ面のバリが減少し、側面中央部の肉厚も偏肉が減少した。即ち、成形圧が均等化されるため側面中央部の収縮率も均等化し、製品の収縮率のバラツキから起こる変形も減少させることができた。

【0010】また、型6aは、引張強度は約20kgf/cm²、圧縮強度は約130kgf/cm²であり、従って圧縮強度は引張強度の6倍以上の強度特性があることから、従来の真空引き型固定の場合には、水平成形圧が引張負荷になるため、型6aの厚みが薄くなるほど破損比率は増加するが、本発明による加圧による型固定の場合には、水平成形圧が型6aに対して強度特性の強い圧縮負荷になるため、型6aの厚みに左右されずに破損を防

止することができた。

【0011】図3ないし図5を用いて第二実施例を説明する。陶磁器成形型の固定装置10bは、図示しないモータ等により回転自在に形成した円柱状のロクロ軸1bと、該ロクロ軸1bの上部に固着し、上端を開口した円筒形状の外ダブ21bと、該外ダブ21bの内側に同心円状に配設し、両端を開口して、円周方向に8個に分割した円筒形状の内ダブ22bと、該外ダブ21bと該内ダブ22b間の空隙3bに、長さ方向に2列に、かつ、円周方向に8個挟設した加圧シリンダよりなる加圧機構4bと、一端を該加圧機構4bに他端を図示しない油圧ポンプ等に接続し、前記ロクロ軸1bおよび前記外ダブ21bの内部に配設した液体供給孔5bと、前記内ダブ22bの内側に配設した石膏等よりなる型6bと、該型6bの内部に図示しないモータ等により回転自在に配設したコテ7bとよりなり、前記8個の内ダブ22bと前記外ダブ21b間には、円周方向に対するズレ防止用のピン8bが2個ずつ挟設されている。

【0012】次に、本第二実施例の作用について説明する。まず、図示しない油圧ポンプ等により、液体供給孔5bを介して加圧機構4bに油を入れて加圧し、型6bを固定した後、粘土等の陶磁器原料を型6bに入れて、図示しないモータ等により型6bとコテ7bの両方を回転させながら、コテ7bを陶磁器原料に垂直方向、水平方向の順序で押し当てることにより、圧延成形した陶磁器製品を得ることができる。なお、ピン8bによって、内ダブ22bを拡張または収縮させた場合の円周方向へのズレを防止して、有効に拡張または収縮を可能とする。

【0013】また、前記第一実施例と同様の実験結果によれば、前記第一実施例とはほぼ同様に、成形圧の均等化、側面中央部の収縮率の均等化、製品変形の減少、型の破損防止等の作用および効果を得ることができた。

【0014】図6ないし図8を用いて第三実施例を説明する。陶磁器成形型の固定装置10cは、図示しないモータ等により回転自在に形成した円柱状のロクロ軸1cと、該ロクロ軸1cの上部に固着し、上端を開口した八角形状の外ダブ21cと、該外ダブ21cの内側に配設し、両端を開口して、周囲方向に8個に分割した八角形状の内ダブ22cと、該外ダブ21cと該内ダブ22c間の空隙3cに、長さ方向に2列に、かつ、周囲方向に8個に分割した八角形状の内ダブ22cと、該外ダブ21cと該内ダブ22c間の空隙3cに、長さ方向に2列に、かつ、周囲方向に16個挟設した加圧シリンダよりなる加圧機構4cと、一端を該加圧機構4cに他端を図示しない油圧ポンプ等に接続し、前記ロクロ軸1cおよび前記外ダブ21cの内部に配設した液体供給孔5cと、前記内ダブ22cの内側に2個に分割して配設した石膏等よりなる型6cと、該型6cの内部に図示しないモータ等により回転自在に配設したコテ7cとよりな

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り、前記8個の内ダブ22cと前記外ダブ21c間には、周囲方向にズレ防止用のピン8cが2個ずつ挟設されている。

【0015】次に、本第三実施例の作用について説明する。まず、図示しない油圧ポンプ等により、液体供給孔5cを介して加圧機構4cに油を入れて加圧し、型6cを固定した後、粘土等の陶磁器原料を型6cに入れて、図示しないモータ等により型6cとコテ7cの両方を回転させながら、コテ7cを陶磁器原料に垂直方向、水平方向の順序で押し当てることにより、圧延成形した陶磁器製品を得ることができる。なお、ピン8cによって、内ダブ22cを拡張または収縮させた場合の円周方向へのズレを防止して、有効に拡張または収縮を可能とする。

【0016】なお、本発明に係わる陶磁器成形型の固定装置の各構成要素の形状、大きさ、材質および作動方法等は、前記した目的、作用および後記する発明の効果が達成される範囲内においてそれぞれ任意に定められてよく、これらの変更はいずれも本発明の要旨を何ら変更するものでないことは申すまでもない。

【0017】

【発明の効果】以上詳細に説明したように、本発明は、ロクロ軸により回転自在に形成した外ダブと内ダブ間に加圧機構を挟設して内ダブを適宜拡張収縮し、内ダブの内側に配設した型を固定する陶磁器成形型の固定装置とすることにより、型の脱着時の遊びと型の膨脹収縮による変化を吸収して、型の固定および取り出しを容易にし、かつ、型の破損を防止して、成形作業の効率を向上させる効果がある。また、前記加圧機構が、外ダブと内ダブ間に挟設した螺旋状の加圧管よりなる陶磁器成形型

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の固定装置とすることにより、型に対する加圧を均等化して、型の破損を防止し、かつ、陶磁器の成形時の肉厚、成形圧のバラツキを少なくして、陶磁器製品の品質を向上させる効果がある。さらに、前記加圧機構が、外ダブと内ダブ間に挟設した複数の加圧シリンダよりなる陶磁器成形型の固定装置とすることにより、加圧機構を簡素化し、さらに、複数の加圧シリンダで効率的に型を固定して、型固定装置のコストを低減させる効果がある。以上説明したように、本発明は、従来にない独特の効果を奏し、まことに実用的で優れた発明である。

【図面の簡単な説明】

【図1】本発明の第一実施例を示す縦断面図である。

【図2】図1のA-A断面図である。

【図3】本発明の第二実施例を示す縦断面図である。

【図4】図3のB-B断面図である。

【図5】図3のC-C断面図である。

【図6】本発明の第三実施例を示す縦断面図である。

【図7】図6のD-D断面図である。

【図8】図6のE-E断面図である。

【図9】従来の実施例を示す縦断面図である。

【符号の説明】

10a、10b、10c 陶磁器成形型の固定装置

1a、1b、1c ロクロ軸

21a、21b、21c 外ダブ

22a、22b、22c 内ダブ

3a、3b、3c 空隙

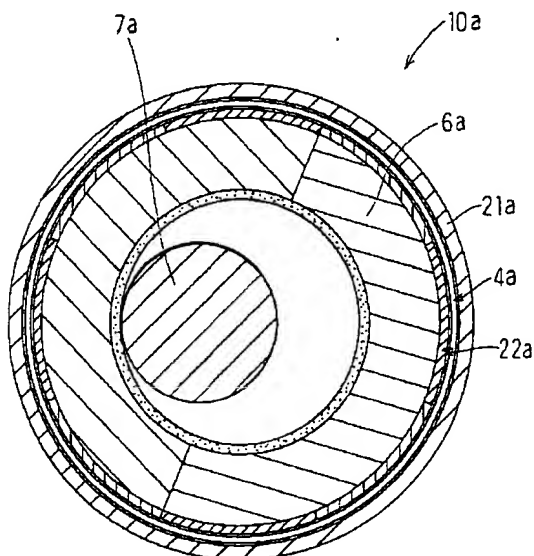
4a、4b、4c 加圧機構

5a、5b、5c 液体供給孔

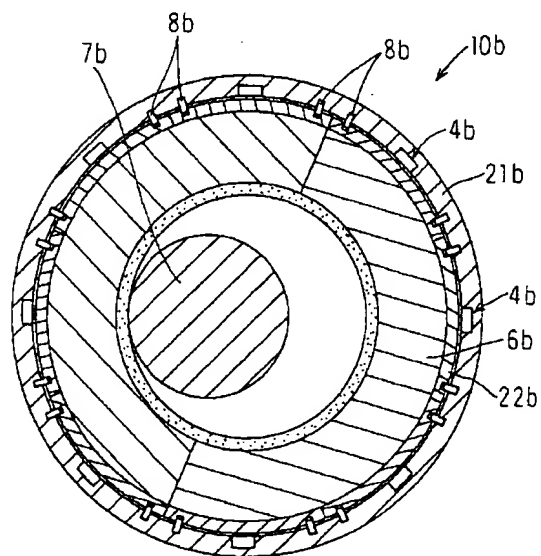
6a、6b、6c 型

7a、7b、7c コテ

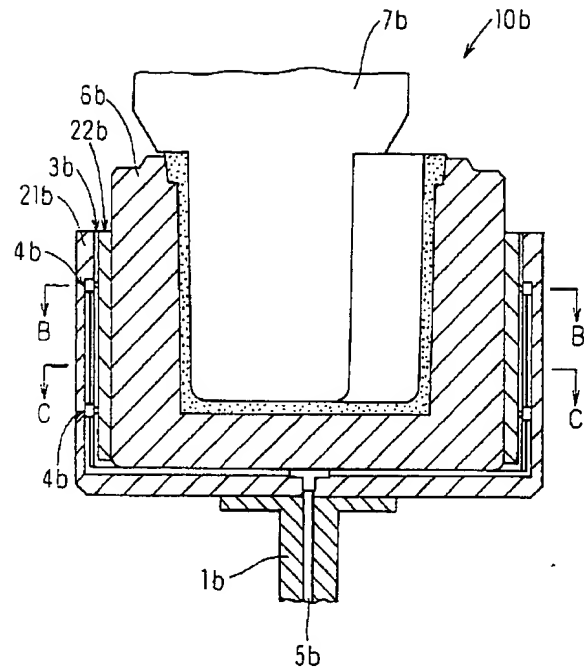
【図2】



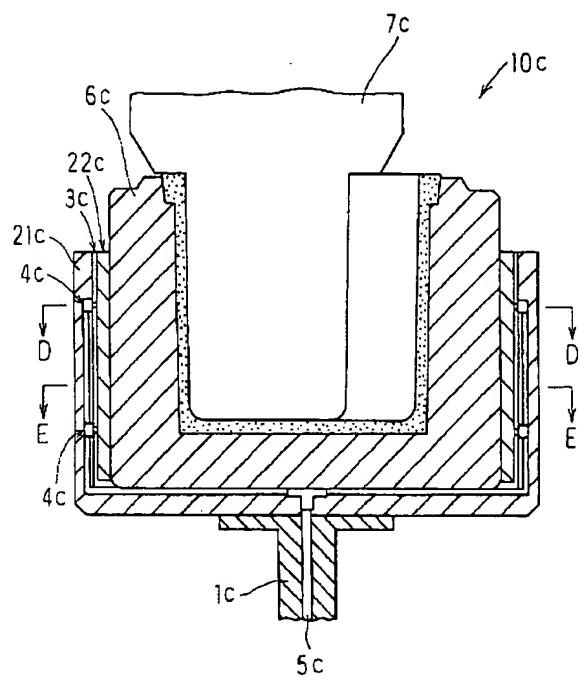
【図4】



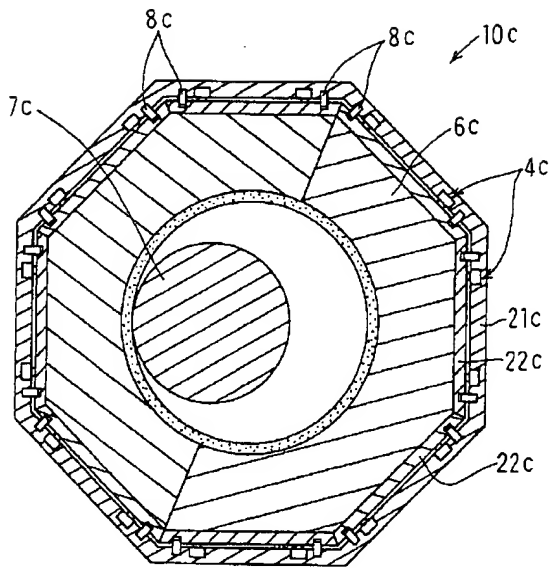
【図3】



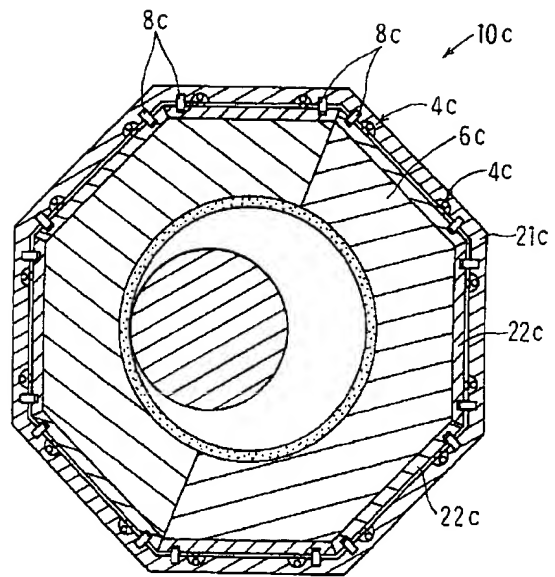
【図6】



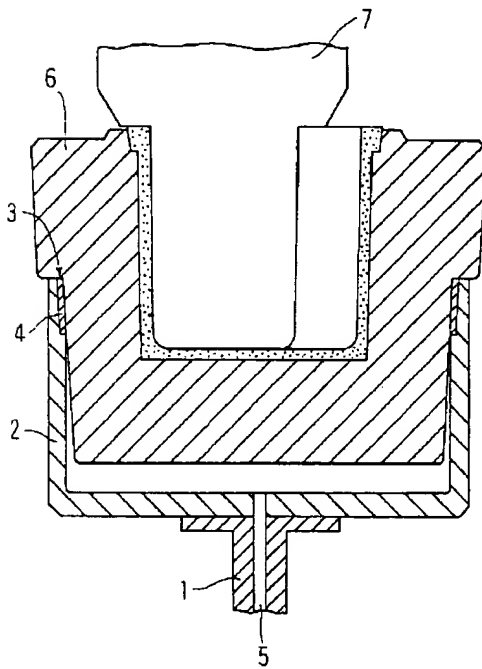
【図7】



【図8】



【図9】



* NOTICES *

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] this invention relates to the locking device of the pottery form block which made fixation and ejection of a mold easy by carrying out pressurization-and-decompression adjustment of the mold for pottery fabrication by the pressurization mechanism from the side.

[0002]

[Description of the Prior Art] Generally, putting in a mold 6 into a dub 2 and rotating the potter's wheel shaft 1 in low-pressure rolling fabrication, as shown in drawing 9, pottery fabrication equipment pays pottery raw materials, such as clay, into a mold 6, and is pressing and fabricating the trowel 7. Moreover, in the high-pressure rolling fabrication of which the densification of raw materials, such as clay, and highly precise-ization are required, a mold 6 is put in into a dub 2, vacuum length is carried out for this mold 6, subsequently, carrying out high-speed rotation of the potter's wheel shaft 1, raw materials, such as a pottery clay, are paid into this mold 6, and the trowel 7 is pressed and fabricated. for this reason, as a locking device of the conventional pottery form block In order in low-pressure rolling fabrication to have arranged dub rubber 4 between the dub 2 and the mold 6, and for this to have determined the height of the details of a mold 6, and the main position and to absorb the play at the time of the desorption of a mold 6, and the dimensional change by expansion contraction further The about 0.8mm - 1mm opening 3 is formed between dub rubber 4 and the mold 6. Moreover, in high-pressure rolling fabrication, for relief prevention of the mold 6 besides the above-mentioned dub rubber 4, a pore 5 is formed in the potter's wheel shaft 1 and a dub 2, vacuum length is carried out and the mold 6 is fixed from this.

[0003]

[Problem(s) to be Solved by the Invention] As a locking device of the conventional pottery form block, in the case of low-pressure molding, form dub rubber 4 between a dub 2 and a mold 6, and it corresponds to change by the play at the time of the desorption of a mold 6, and expansion contraction further as mentioned above. Since the opening 3 is formed between dub rubber 4 and the mold 6, the problem of deformation by the thickness deviation by the eccentricity of a mold 6 and the variation of moulding pressure arising at the time of fabrication has arisen. Moreover, since the pore 5 which carries out vacuum length of the mold besides the above-mentioned dub rubber 4 in the case of high-pressure molding is formed and the load of vaccum pressure increases in addition to moulding pressure, although the mold 6 was thickened, or the mold 6 was further strengthened with the aggregate of reinforcement etc. and breakage of a mold 6 is prevented By this, the weight of a mold and the configuration became large, and handling became difficulty, and the cost of a mold also went up, and problems, like a life also becomes short are also newly produced. Furthermore, although the load to the equation of thickness and moulding pressure and a mold needs to be mitigated and an opening 3, adjustment of vaccum pressure, etc. are considered in order to carry out precision fabrication of densification etc., the problem which becomes various -- sufficient precision cannot be acquired -- is produced.

[0004] Then, by being made in order to remove the conventional fault mentioned above, and enabling

regulation of the opening between an outside dub and an inner dub in the pressurization pipe or pressurization cylinder which put in and pressurized fluids, such as an oil and air, this invention makes fixation and ejection of a mold easy, and equates moulding pressure and aims at acquiring sufficient forming precision.

[0005]

[Means for Solving the Problem] Then, the dub outside the shape of the shape of a cylindrical shape which prepared this invention on the potter's wheel shaft formed in the first place free [rotation] and this potter's wheel shaft, and carried out opening of the upper limit, and a polygon, The inner dub of the shape of the shape of a cylindrical shape which arranged inside the dub outside this, carried out opening of the ends, and was divided into the arbitrary number, and a polygon, It is because it considers as the locking device of the pottery form block which consists of the pressurization mechanism arranged between the dub outside this, and this inner dub, a mold arranged inside this inner dub, and a trowel arranged in the interior of this mold free [rotation]. It is because it considers as the locking device of the pottery form block with which a pressurization mechanism is set to the second from the spiral pressurization pipe which ****(ed) between the outside dub and the inner dub. Furthermore, it is going to attain the above-mentioned purpose by considering as the locking device of the pottery form block with which a pressurization mechanism is set to the third from two or more pressurization cylinders which ****(ed) between the outside dub and the inner dub.

[0006]

[Function] In this invention, form a potter's wheel shaft free [rotation] and a dub is prepared on this potter's wheel shaft outside the shape of the shape of a cylindrical shape which carried out opening of the upper limit, and a polygon. Extended contraction of this inner dub is suitably carried out according to the pressurization mechanism which arranged the inner dub which carried out opening of the ends and was divided into the arbitrary number inside the dub outside this, and was arranged in it between the dub outside this, and this inner dub. Since the mold arranged inside this inner dub is fixed, a trowel is further arranged in the interior of this mold, the pottery of an arbitrary configuration is fabricated and regulation of the opening between an outside dub and an inner dub is attained according to a pressurization mechanism, The play at the time of the desorption of a mold and the dimensional change by expansion contraction of a mold are absorbed. especially about a polygon-like thing While preventing gap of the inner dub to an outside dub and making fixation and ejection of a mold easy, breakage of a mold can be prevented for the load to a mold as a strong compression load of a strength property. Moreover, since it pressurizes with a spiral pipe by considering as the pressurization mechanism which consists of a spiral pressurization pipe which ****(ed) between the outside dub and the inner dub, the pressurization of a mold is equated and thickness at the time of pottery fabrication and variation of moulding pressure can be lessened. Furthermore, by considering as the pressurization mechanism which consists of two or more pressurization cylinders which ****(ed) between the outside dub and the inner dub, the configuration of a pressurization mechanism can be simplified and a mold can be efficiently fixed in two or more pressurization cylinders.

[0007]

[Example] Below, succeedingly, in order to clarify further the summary of the locking device of the pottery form block of this invention, one example is explained using a drawing. The first example is explained using drawing 1 and drawing 2 . Potter's wheel shaft 1a of the shape of a pillar which formed locking-device 10a of a pottery form block free [rotation] by the motor which is not illustrated, Dub 21outside shape of cylindrical shape which fixed in the upper part of this potter's wheel shaft 1a, and carried out opening of upper limit a, Inner dub 22a of the shape of a cylindrical shape which arranged in the shape of a concentric circle inside dub 21outside this a, carried out opening of the ends, and was divided into the arbitrary number at the circumferencial direction, Pressurization mechanism 4a which consists of the spiral rubber tube which ****(ed) to dub 21outside this a, and opening 3a between this inner dub 22a, Liquid feed-holes 5a which connected the end to this pressurization mechanism 4a, connected the other end to the hydraulic pump etc., and was arranged in the interior of dub 21outside the above a, and the aforementioned potter's wheel shaft 1a, the trowel arranged free [rotation] by the

motor which is not illustrated inside mold 6a which consists of plaster which divided into two pieces and was arranged inside dub 22 within the above a, and this mold 6a -- it consists of 7a

[0008] Next, an operation of an example is explained for a start [this]. First, from the hydraulic pump which is not illustrated, through liquid feed-holes 5a, put an oil into pressurization mechanism 4a, and it is pressurized. the motor which pays pottery raw materials, such as clay, to mold 6a, and is not illustrated after fixing mold 6a -- mold 6a and a trowel -- while rotating both 7a -- a trowel -- the pottery product which carried out rolling fabrication can be obtained by pressing 7a against a pottery raw material in a perpendicular direction and horizontal sequence

[0009] In addition, outside dub 21a and opening 3a between inner dub 22a are made into about 3mm working as an example of 1 experiment. a pottery raw material -- 70% of clay, 15% of feldspars, and 15% of moisture contents -- carrying out -- the rotational speed of mold 6a -- 290rpm and a trowel -- the rotational speed of 7a -- 270rpm and perpendicular moulding pressure 5 kg/cm² As level moulding pressure 3 kg/cm², and cycle-time 20 seconds The crevice between 7a is set to 7mm. pressurization mechanism 4a -- the oil of 1 kg/cm² - 10 kg/cm² -- putting in -- mold fixation -- carrying out -- mold 6a and a trowel -- The barricade of the joint surface fabricated, so that the pressurization of mold 6a became high as compared with the mold fixation by the conventional vacuum length, when the container made from pottery of the shape of **** with a thickness of 7mm was fabricated decreased, and, also in the thickness of a side center section, thickness deviation decreased. That is, since moulding pressure was equated, the contraction of a side center section was also able to be equated, and the deformation which takes place from the variation in the contraction of a product was also able to be decreased.

[0010] Moreover, mold 6a is [about 20 kgf/cm² and compressive strength of tensile strength] about 130 kgf/cm². Therefore, although in the conventional vacuum sweeping-mold fixation a breakage ratio increases from compressive strength having the strength property of 6 times or more of tensile strength so that the thickness of mold 6a becomes thin since level moulding pressure becomes a **** load In the mold fixation by the pressurization by this invention, since level moulding pressure became the strong compression load of a strength property to mold 6a, breakage was able to be prevented, without being influenced by the thickness of mold 6a.

[0011] The second example is explained using drawing 3 or drawing 5 . Potter's wheel shaft 1b of the shape of a pillar which formed locking-device 10b of a pottery form block free [rotation] by the motor which is not illustrated, Dub 21 outside shape of cylindrical shape which fixed in the upper part of this potter's wheel shaft 1b, and carried out opening of upper limit b, Inner dub 22b of the shape of a cylindrical shape which arranged in the shape of a concentric circle inside dub 21 outside this b, and carried out ends opening to it and which was divided into eight pieces at the circumferencial direction, In two trains in the length direction at dub 21 outside this b, and opening 3b between this inner dub 22b And pressurization mechanism 4b which consists of a pressurization cylinder which ****(ed) to eight circumferencial directions, Liquid feed-holes 5b which connected the end to the hydraulic pump which does not illustrate the other end to this pressurization mechanism 4b, and was arranged in the interior of aforementioned potter's wheel shaft 1b and dub 21 outside the above b, It consists of 7b. the trowel arranged free [rotation] by the motor which is not illustrated inside mold 6b which consists of plaster arranged inside dub 22 within the above b, and this mold 6b -- Between eight aforementioned inner dub 22b and dub 21b outside the above, two pin 8b for gap prevention to a circumferencial direction is **** (ed) at a time.

[0012] Next, an operation of **** 2 example is explained. First, with the hydraulic pump which is not illustrated, through liquid feed-holes 5b, put an oil into pressurization mechanism 4b, and it is pressurized. the motor which pays pottery raw materials, such as clay, to mold 6b, and is not illustrated after fixing mold 6b -- mold 6b and a trowel -- while rotating both 7b -- a trowel -- the pottery product which carried out rolling fabrication can be obtained by pressing 7b against a pottery raw material in a perpendicular direction and horizontal sequence In addition, by pin 8b, gap in the circumferencial direction at the time of extending or shrinking inner dub 22b is prevented, and extension or contraction is enabled effectively.

[0013] Moreover, according to the same experimental result as the first example of the above, an

operation and effect of the equation of moulding pressure, the equation of the contraction of a side center section, reduction of product deformation, breakage prevention of a mold, etc. as well as [almost] the first example of the above were able to be acquired.

[0014] The third example is explained using drawing 6 or drawing 8. Potter's wheel shaft 1c of the shape of a pillar which formed locking-device 10c of a pottery form block free [rotation] by the motor which is not illustrated, Dub 21outside shape of 8 square shapes which fixed in the upper part of this potter's wheel shaft 1c, and carried out opening of upper limit c, Inner dub 22c of the shape of 8 square shapes which arranged and carried out ends opening inside dub 21outside this c and which was divided into eight pieces in the direction of the circumference, In two trains in the length direction at dub 21outside this c, and opening 3c between this inner dub 22c And inner dub 22c of the shape of 8 square shapes divided into eight pieces in the direction of the circumference, In two trains in the length direction at dub 21outside this c, and opening 3c between this inner dub 22c And pressurization mechanism 4c which consists of a pressurization cylinder which ****(ed) in the 16 directions of the circumference, Liquid feed-holes 5c which connected the end to the hydraulic pump which does not illustrate the other end to this pressurization mechanism 4c, and was arranged in the interior of aforementioned potter's wheel shaft 1c and dub 21outside the above c, Mold 6c which consists of plaster which divided into two pieces and was arranged inside dub 22within the above c, the trowel arranged free [rotation] by the motor which is not illustrated inside this mold 6c -- it consists of 7c, and between eight aforementioned inner dub 22c and dub 21c outside the above, it shifts in the direction of the circumference and two pin 8c for prevention is ****(ed) at a time

[0015] Next, an operation of **** 3 example is explained. First, with the hydraulic pump which is not illustrated, through liquid feed-holes 5c, put an oil into pressurization mechanism 4c, and it is pressurized. the motor which pays pottery raw materials, such as clay, to mold 6c, and is not illustrated after fixing mold 6c -- mold 6c and a trowel -- while rotating both 7c -- a trowel -- the pottery product which carried out rolling fabrication can be obtained by pressing 7c against a pottery raw material in a perpendicular direction and horizontal sequence In addition, by pin 8c, gap in the circumferential direction at the time of extending or shrinking inner dub 22c is prevented, and extension or contraction is enabled effectively.

[0016] In addition, a configuration, a size, the quality of the material, the operation method, etc. of each component of the pottery form block concerning this invention may be defined within limits by which said purpose, an operation, and the effect of the invention that carries out a postscript are attained at arbitration, respectively, and no these change needs to say that it is not what changes the summary of this invention in any way. [of a locking device]

[0017]

[Effect of the Invention] By this invention's ****(ing) a pressurization mechanism between the outside dub formed free [rotation] with the potter's wheel shaft, and an inner dub, carrying out extended contraction of the inner dub suitably, and considering as the locking device of the pottery form block which fixes the mold arranged inside the inner dub, as explained to the detail above Change by expansion contraction of the play at the time of the desorption of a mold and a mold is absorbed, and fixation and ejection of a mold are made easy, and breakage of a mold is prevented, and it is effective in raising the efficiency of a fabrication operation. Moreover, by considering as the locking device of the pottery form block with which the aforementioned pressurization mechanism consists of a spiral pressurization pipe which ****(ed) between the outside dub and the inner dub, the pressurization to a mold is equated, and breakage of a mold is prevented, and thickness at the time of fabrication of pottery and variation of moulding pressure are lessened, and it is effective in raising the quality of a pottery product. Furthermore, by considering as the locking device of the pottery form block with which the aforementioned pressurization mechanism consists of two or more pressurization cylinders which ****(ed) between the outside dub and the inner dub, a pressurization mechanism is simplified, a mold is efficiently fixed in further two or more pressurization cylinders, and it is effective in reducing the cost of a mold locking device. As explained above, this invention is invention which the peculiar effect it is ineffective to the former was done so, was very practical, and was excellent.